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Compositional and monomer sequence distribution analysis of monodisperse brominated-polystyrenes using interaction chromatography JUNWON HAN, CHANG YEOL RYU, Department of Chemistry and Chemical Biology, Rensselaer Polytechnic Institute, Troy, NY 12180, JAMES J. SEMLER, JAN GENZER, Department of Chemical and Biomolecular Engineering, NCSU, Raleigh, NC 27695 — High performance liquid chromatography techniques have been developed for characterizing complex polymers that are often heterogeneous in molecular weight, molecular architecture, and chemical composition. Recently, interaction chromatography (IC) techniques have been developed, which facilitate separation of polymers based on enthalpic “attraction” difference among the chemical constituents of the molecule. Here, we use IC for characterizing the composition and monomer sequence distribution in statistical copolymers of poly(styrene-co-4-bromostyrene) (PBr_xS). The PBr_xS copolymers were synthesized by brominating monodisperse polystyrenes; the degree of bromination (x) and the sequence distribution have been adjusted by varying the bromination time and the solvent quality, respectively. Both normal-phase (bare silica) and reversed-phase (C18-bonded silica) columns are used at different combinations of solvents and non-solvents to monitor the content of the 4-bromostyrene units in the copolymer and their average monomer sequence distribution.

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